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Implementation of Vessel Traffic Service (VTS) and Automatic Identification System (AIS) for Shipping Safety: a Case Study of Type a Class II Benoa Navigation District

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Abstract

Legal regulations regarding the implementation of Vessel Traffic Service (VTS) and Automatic Identification System (AIS) devices to ensure shipping safety in Indonesia are contained in the Minister of Transportation Regulation (Permenhub) Number 18 of 2022 concerning Automatic Identification Systems for Ships Conducting Activities in Indonesian Waters. This regulation replaces the previous regulation and requires vessels navigating in Indonesian waters (both national and foreign) to install and activate AIS. Obstacles encountered in implementing the Vessel Traffic Service System and Automatic Identification System devices in the Benoa Class II Type A Navigation District include non-technical obstacles in the form of operational and maintenance issues, such as aging equipment and high maintenance costs. Furthermore, there are technical obstacles related to the integration of disparate systems, as well as challenges in providing and maintaining the necessary hardware and software.

Keywords : Legal regulations, Vessel Traffic Service (VTS) and Automatic Identification System (AIS), and obstacles.

Introduction

Navigation encompasses all activities related to the implementation of a shipping safety system, including the provision of ship traffic facilities and services. This law also mandates the Government, through the Ministry of Transportation, specifically the Directorate General of Sea Transportation (Ditjen Hubla), to organize and supervise the national navigation system through the Navigation District and the Harbormaster and Port Authority Office (KSOP). Articles 207 to 210 of Law No. 17 of 2008 concerning Shipping stipulate that the government is obliged to provide Navigation Aids, maritime communication systems, and ship traffic information services to ensure shipping safety. This provision serves as the legal basis for the implementation of Vessel Traffic Service (VTS) and Automatic Identification System (AIS) throughout Indonesian waters.

By looking at the background above, the following problem formulation can be drawn: How are the legal regulations regarding the implementation of Vessel Traffic Service (VTS) and Automatic Identification System (AIS) in order to ensure shipping safety in Indonesia, and both the obstacles and constraints faced in the implementation of Vessel Traffic Service (VTS) and Automatic Identification System (AIS) in the Class II Benoa Type A Navigation District, and how are the legal

E-ISSN: 3032-0135
Vol. 3, No.2, January - June (2026), pp. 93 - 100

enforcement efforts.

This study aims to determine the legal regulations regarding the implementation of Vessel Traffic Service (VTS) and Automatic Identification System (AIS) in order to ensure shipping safety in Indonesia, and both the obstacles and constraints faced in the implementation of Vessel Traffic Service (VTS) and Automatic Identification System (AIS) in the Benoa Class II Type A Navigation District, as well as how the law enforcement efforts are carried out.

Methods

The research method used in this research is a normative legal research method that uses various types of primary legal materials in the form of laws and regulations and secondary legal materials in the form of library materials related to the authority of the prosecutor's office and the corruption eradication commission as sources of research material. Johnny Ibrahim is of the opinion that normative legal research is a form of scientific research aimed at finding the truth based on the logic of legal science reviewed from the normative part, or which is in the form of an effort to discover law that is adapted to a particular case.

Results and Discussion

Legal Regulations Concerning the Implementation of Vessel Traffic Service (VTS) and Automatic Identification System (AIS) to Ensure Shipping Safety in Indonesia

Maritime law, broadly defined, encompasses all aspects of the use or exploitation of the sea and its resources. In legal literature in continental countries such as the Netherlands, maritime law is generally defined as shipping law, which primarily focuses on regulating maritime transport and related matters. In Anglo-Axis countries, the term maritime law refers to legal provisions focused on maritime transport related to international trade. It can be said that shipping law, or maritime law, is essentially a specific part of maritime law in the broadest sense. As a maritime country, Indonesia's territory is mostly sea (around 65% of Indonesia's total territory), which consists of territorial seas (0.3 million km2), as well as inland sea waters (internal waters, and archipelagic waters) covering an area of 2.8 million km2. In addition, since the enactment of the International Law of the Sea (UNCLOS-United Nation Convention on the Law of the Sea) in 1982, Indonesia has received additional territory under its authority which is commonly known as ZEEI (Indonesian Exclusive Economic Zone), covering an area of 2.7 million km2. Thus, the issue of transportation or sea transportation has become very important and fundamental in bridging the inter-island areas in the archipelago.

Article 8 paragraph (1). The use of Indonesian-flagged vessels by national sea transportation companies is intended to implement the cabotage principle to protect sovereignty and support the

E-ISSN: 3032-0135
Vol. 3, No.2, January - June (2026), pp. 93 - 100

realization of the Archipelago Outlook and provide the widest possible business opportunities for national transportation companies to obtain market share, therefore foreign vessels are prohibited from transporting passengers and/or goods between islands or between ports in the territorial sea area along with archipelagic waters and inland waters. The cabotage principle is the right to carry out commercial transportation of passengers, goods and post from one port to another port within the sovereign territory of the Republic of Indonesia. Furthermore, in Law Number 17 of 2008 concerning Shipping, shipping is defined as a unified system consisting of water transportation, ports, safety and security, and maritime environmental protection. In general, it can be said that this law contains provisions that are very comprehensive compared to the previous shipping law. The most obvious is the greater number of articles contained in the new shipping law, namely 355 articles, compared to the previous shipping law which only contained 132 articles.

Indonesia is an archipelagic nation with diverse tourism potential across its islands, and access to these islands requires sea transportation. Due to the government's lack of attention to maritime aspects, some small-scale, locally-initiated transportation businesses are poorly monitored. Consequently, many vessels operated by both individuals and corporations lack adequate attention to maritime safety. Furthermore, law enforcement and the implementation of shipping regulations have not been optimally implemented. This contributes to frequent maritime accidents. Ultimately, maritime users suffer losses.

According to Law No. 17 of 2008 concerning Shipping, shipping is a strategic maritime transportation facility for national development and a vital means of supporting national unity. It facilitates access and connectivity between regions through waterways. Law No. Article 1, point 32, of Presidential Regulation No. 17 of 2008, specifically Article 1, point 32, affirms that maritime safety and security are the fulfillment of safety and security requirements concerning transportation in waters, ports, and the maritime environment.

Presidential Regulation No. 39 of 2013 concerning the 2014 Government Work Plan, Article F concerning Defense and Security, stipulates the intensification and expansion of maritime security patrols and the immediate establishment of a Maritime Security Agency supported by a maritime security early warning system. Effective coordination, command, and control are essential for the development of a maritime security early warning system. A maritime security early warning system integrates maritime hazard parameters to provide guidance and warnings for maintaining maritime security and shipping security.

An early warning system utilizes waves and wind as hazard parameters for shipping. These parameters are referred to as hazard parameters due to their influence. The early warning system integrates shipping, wave, and wind information into a geographic information system that can monitor the presence of ships throughout Indonesia and potential hazards that may threaten shipping. According to the Shipping Law, which contains four main elements: water transportation, ports,

E-ISSN: 3032-0135
Vol. 3, No.2, January - June (2026), pp. 93 - 100

shipping safety and security, and maritime environmental protection.

Government Regulation (PP) Number 13 of 2022 concerning the Implementation of Security, Safety, and Law Enforcement in Indonesian Waters and Indonesian Jurisdiction Areas serves as the legal basis for an early warning system in maritime navigation for safety and security at sea.

Minister of Transportation Regulation Number 4 of 2023 concerning the Provision of Shipping Telecommunications and Vessel Traffic Management Services in Indonesian Waters regulates the installation and activation of the Automatic Identification System (AIS) on Indonesian vessels and the monitoring of AIS activation on foreign vessels navigating in Indonesian waters.

AIS is a crucial navigational tool in the development of maritime safety technology following the introduction of radar systems. AIS is a Very High Frequency (VHF) radio transmission system that transmits data via VHF Data Link (VDL) to automatically send and receive information to other vessels, Vessel Traffic Services (VTS) stations, and Coastal Radio Stations (SROP). Implementing an AIS system will assist in regulating vessel traffic and reduce navigational hazards.

AIS continuously transmits ship data such as the name and type of ship, call sign, nationality, Maritime Mobile Services Identification (MMSI), International Maritime Organization (IMO) number, ship weight, ship specifications, navigation status, ship coordinates, sailing destination with estimated time of arrival, ship speed, and course.

AIS is used in navigational equipment that is essential for preventing collisions. Due to the limitations of radio capabilities, and because not all ships are equipped with AIS, this system is primarily used as a surveillance tool and to avoid the risk of collisions rather than as an automatic collision prevention system, in accordance with the International Regulations for Preventing Collisions at Sea (COLREGS).

AIS, or short-range vessel tracking system, is used on ships and coast stations to identify and track vessels by transmitting electronic data to other ships and nearby coast stations. Information such as position, heading, and speed can be displayed on a computer screen or an Electronic Charts Display and Identification System (ECDIS). The AIS system is integrated from a standard VHF radio transceiver with Loran C or Global Positioning System (GPS) and with other electronic navigation sensors. For the AIS rules themselves, the International Maritime Organization (IMO) has made a rule, namely Regulation 19 of SOLAS Chapter V which contains the installation of AIS where ships are required to install AIS transponder devices, especially on passenger ships, tankers and ships measuring 300 Gross Tonnage and above. The regulation also contains the requirement for AIS to provide information data in the form of ship identity, ship type, position, destination, speed, navigation status and other information related to shipping safety. AIS is integrated with a graphical electronic chart or a radar display, providing combined navigation information on a single display. The role of AIS in monitoring in narrow shipping lanes when waters and ports are busy, Vessel Traffic Service (VTS) may be present in regulating ship traffic. Now AIS provides awareness of additional traffic and

E-ISSN: 3032-0135
Vol. 3, No.2, January - June (2026), pp. 93 - 100

provides services with information about the presence of other ships and their routes.

Article 1 of the Regulation of the Minister of Transportation Number 4 of 2023 concerning the Implementation of Shipping Telecommunications and Ship Traffic Management Services in Indonesian Waters, that VTS is a ship traffic service in a designated area that is mutually integrated and implemented by the authorized party, namely the Minister of Transportation and is designed to improve ship safety, navigation efficiency and protect the environment, which has the ability to interact and respond to the development of ship traffic situations in the VTS area by using radio equipment and shipping electronics.

Obstacles Faced in the Implementation of Vessel Traffic Service (VTS) and Automatic Identification System (AIS) in the Benoa Class II Type A Navigation District, as well as Law Enforcement Efforts

Maritime Telecommunications (Telkompel) is a special telecommunications for the purposes of maritime services which is any transmission, sending or receiving of any type of sign, image, sound and information in any form through a wire, optical, radio or other electromagnetic system in the maritime mobile service which is part of maritime safety (Maritime Law No. 17 of 2008 CHAPTER I article 1 paragraph 47). In implementing this maritime telecommunications, the Benoa Class II Type A Navigation District assigns this task to the Coastal Radio Station (SROP) and Vessel Traffic Service (VTS). There are eight Coastal Radio Stations within the Benoa Class II Type A Navigation District's working area: Benoa Class II SROP, Lembar Class III SROP, Bima Class III SROP, Gilimanuk Class IV SROP, Celukan Bawang Class IV SROP, Padangbai Class IV SROP, Labuhan Lombok Class IV SROP, Badas Class IV SROP, and two Vessel Traffic Service (VTS) stations, including the Benoa VTS and Lembar VTS, spread across the provinces of Bali and West Nusa Tenggara (NTB).

To improve oversight of the use and activation of the Automatic Identification System (AIS) on vessels navigating Indonesian waters, the Ministry of Transportation, through the Benoa Class II Type A Navigation District, conducted a socialization of Ministerial Regulation Number PM 18 of 2022 concerning Automatic Identification Systems for Vessels Conducting Activities in Indonesian Waters. This activity is a concrete step in providing an understanding of the regulations that form the basis for monitoring AIS use and activation, sanctions for AIS violations, and regulations for Navigation Services.

Vessel monitoring identification is a form of ship surveillance conducted to monitor vessels entering, leaving, or passing through the Benoa Port Area as a reference for reporting vessel activities within the Benoa Port Area. Vessel monitoring identification is carried out based on the monitoring conducted after the vessel has been identified through the installation of an AIS (Automatic Identification System). According to Mr. Budi Setia, S.Sos, M.Si, Head of the Benoa Class II Type A Navigation District, "AIS is very important. It is a tool for identifying vessels underway. So when a

E-ISSN: 3032-0135
Vol. 3, No.2, January - June (2026), pp. 93 - 100

vessel is underway, we at the VTS station are aware because the vessel's movements are monitored on the monitor screen. The VTS can determine the vessel's position and monitor its journey from one port to another. If an untoward incident occurs, we can determine the vessel's location."

Vessels wishing to connect to the Benoa VTS must be equipped with a device or system commonly known as AIS (Automatic Identification System). This allows them to connect to the VTS and access the VTS's AIS monitoring screen. This allows for easier identification of vessels moving from port to port. In the event of an incident or disaster, such as a ship collision, or other incident, connecting to the VTS makes monitoring easier. This opinion is supported by the opinion of Mr. I Gusti Ngurah Agung Putra Adnyana, SE, Head of the Benoa VTS, who stated, "AIS is a useful device for providing information on vessels engaged in activities in the waters. This allows the VTS to monitor their position on the monitor screen."

AIS installed on vessels facilitates vessel identification, and the vessel's movement can be easily monitored by VTS Benoa station officers. Researchers observed that AIS is installed directly on vessels intending to navigate in open waters. AIS is crucial for vessels seeking safety monitoring and identification of vessels entering the Benoa VTS Station area. Vessel movement is the movement of vessels at sea from one point to another to reach their final destination. Vessel movements can be viewed live on the VTS screen, and vessels can provide information to Benoa VTS officers regarding the vessel's current location. This information is used by officers to record and report vessel movement activities in the Benoa Port Area. The VTS monitor can display vessel positions and movements, but vessels must first confirm the monitoring with the Benoa VTS station. Based on direct observations, the author observed that vessel movement in, out, and/or across the Benoa Port area involves officers pressing a button on the map screen, which automatically displays details such as the last GPS (Global Positioning System) position, the port of origin and the port of destination, the travel time, and the vessel's status.

Obstacles to implementing VTS and AIS monitoring in the Benoa Class II Type A Navigation District likely include limited human resources, technical and equipment maintenance issues, and challenges in data coordination and integration. Human resource constraints can arise due to the need for training and certification to meet standards, while technical issues can include equipment that is not always up-to-date or lack of routine maintenance, and coordination challenges can arise due to the complexity of data from various sources that need to be processed efficiently. Law enforcement of the implementation of Automatic Identification System (AIS) devices on board ships in the Navigation District involves monitoring by various parties, inspections by Harbor Masters, and the imposition of administrative sanctions if violations are found. Monitoring is carried out through Coastal Radio Stations (SROP), VTS, and satellites to detect vessels that do not fulfill the obligation to activate and provide correct information via AIS, with the results of inspections and monitoring reported to the Director General of Sea Transportation.

E-ISSN: 3032-0135
Vol. 3, No.2, January - June (2026), pp. 93 - 100

Conclusion

Legal regulations regarding the implementation of Vessel Traffic Service (VTS) and Automatic Identification System (AIS) devices to ensure shipping safety in Indonesia are contained in the Minister of Transportation Regulation (Permenhub) Number 18 of 2022 concerning Automatic Identification Systems for Vessels Conducting Activities in Indonesian Waters. This regulation replaces the previous regulation and requires vessels sailing in Indonesian waters (both national and foreign) to install and activate AIS. This implementation is further regulated through monitoring authority by various parties such as Vessel Traffic Service Stations and satellites, as well as law enforcement involving Harbor Masters and administrative sanctions in the event of violations. Obstacles encountered in the implementation of Vessel Traffic Service and Automatic Identification System devices in the Benoa Class II Type A Navigation District include non-technical obstacles in the form of operational and maintenance issues, such as aging equipment and high maintenance costs. In addition, there are technical obstacles related to the integration of different systems, as well as challenges in providing and maintaining the necessary hardware and software.

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E-ISSN: 3032-0135
Vol. 3, No.2, January - June (2026), pp. 93 - 100

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